Republic of the Philippines
SUPREME COURT
Manila

SECOND DIVISION

G.R. No. L-47851 October 3, 1986

JUAN F. NAKPIL & SONS, and JUAN F. NAKPIL, petitioners,
vs.
THE COURT OF APPEALS, UNITED CONSTRUCTION COMPANY, INC., JUAN J. CARLOS, and the PHILIPPINE BAR ASSOCIATION, respondents.

G.R. No. L-47863 October 3, 1986

THE UNITED CONSTRUCTION CO., INC., petitioner,
vs.
COURT OF APPEALS, ET AL., respondents.

G.R. No. L-47896 October 3, 1986

PHILIPPINE BAR ASSOCIATION, ET AL., petitioners,
vs.
COURT OF APPEALS, ET AL., respondents.

PARAS, *J.:*

These are petitions for review on certiorari of the November 28, 1977 decision of the Court of Appeals in CA-G.R. No. 51771-R modifying the decision of the Court of First Instance of Manila, Branch V, in Civil Case No. 74958 dated September 21, 1971 as modified by the Order of the lower court dated December 8, 1971. The Court of Appeals in modifying the decision of the lower court included an award of an additional amount of P200,000.00 to the Philippine Bar Association to be paid jointly and severally by the defendant United Construction Co. and by the third-party defendants Juan F. Nakpil and Sons and Juan F. Nakpil.

The dispositive portion of the modified decision of the lower court reads:

> **WHEREFORE, judgment is hereby rendered:**
>
> **(a) Ordering defendant United Construction Co., Inc. and third-party defendants (except Roman Ozaeta) to pay the plaintiff, jointly and severally, the sum of P989,335.68 with interest at the legal rate from November 29, 1968, the date of the filing of the complaint until full payment;**
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> **(b) Dismissing the complaint with respect to defendant Juan J. Carlos;**
>
> **(c) Dismissing the third-party complaint;**
>
> **(d) Dismissing the defendant's and third-party defendants' counterclaims for lack of merit;**
>
> **(e) Ordering defendant United Construction Co., Inc. and third-party defendants (except Roman Ozaeta) to pay the costs in equal shares.**
>
> **SO ORDERED. (Record on Appeal p. 521; Rollo, L- 47851, p. 169).**

The dispositive portion of the decision of the Court of Appeals reads:

WHEREFORE, the judgment appealed from is modified to include an award of P200,000.00 in favor of plaintiff-appellant Philippine Bar Association, with interest at the legal rate from November 29, 1968 until full payment to be paid jointly and severally by defendant United Construction Co., Inc. and third party defendants (except Roman Ozaeta). In all other respects, the judgment dated September 21, 1971 as modified in the December 8, 1971 Order of the lower court is hereby affirmed with COSTS to be paid by the defendant and third party defendant (except Roman Ozaeta) in equal shares.

SO ORDERED.

Petitioners Juan F. Nakpil & Sons in L-47851 and United Construction Co., Inc. and Juan J. Carlos in L-47863 seek the reversal of the decision of the Court of Appeals, among other things, for exoneration from liability while petitioner Philippine Bar Association in L-47896 seeks the modification of aforesaid decision to obtain an award of P1,830,000.00 for the loss of the PBA building plus four (4) times such amount as damages resulting in increased cost of the building, P100,000.00 as exemplary damages; and P100,000.00 as attorney's fees.

These petitions arising from the same case filed in the Court of First Instance of Manila were consolidated by this Court in the resolution of May 10, 1978 requiring the respective respondents to comment. (Rollo, L-47851, p. 172).

The facts as found by the lower court (Decision, C.C. No. 74958; Record on Appeal, pp. 269-348; pp. 520-521; Rollo, L-47851, p. 169) and affirmed by the Court of Appeals are as follows:

The plaintiff, Philippine Bar Association, a civic-non-profit association, incorporated under the Corporation Law, decided to construct an office building on its 840 square meters lot located at the comer of Aduana and Arzobispo Streets, Intramuros, Manila. The construction was undertaken by the United Construction, Inc. on an "administration" basis, on the suggestion of Juan J. Carlos, the president and general manager of said corporation. The proposal was approved by plaintiff's board of directors and signed by its president Roman Ozaeta, a third-party defendant in this case. The plans and specifications for the building were prepared by the other third-party defendants Juan F. Nakpil & Sons. The building was completed in June, 1966.

In the early morning of August 2, 1968 an unusually strong earthquake hit Manila and its environs and the building in question sustained major damage. The front columns of the building buckled, causing the building to tilt forward dangerously. The tenants vacated the building in view of its precarious condition. As a temporary remedial measure, the building was shored up by United Construction, Inc. at the cost of P13,661.28.

On November 29, 1968, the plaintiff commenced this action for the recovery of damages arising from the partial collapse of the building against United Construction, Inc. and its President and General Manager Juan J. Carlos as defendants. Plaintiff alleges that the collapse of the building was accused by defects in the construction, the failure of the contractors to follow plans and specifications and violations by the defendants of the terms of the contract.

Defendants in turn filed a third-party complaint against the architects who prepared the plans and specifications, alleging in essence that the collapse of the building was due to the defects in the said plans and specifications. Roman Ozaeta, the then president of the plaintiff Bar Association was included as a third-party defendant for damages for having included Juan J. Carlos, President of the United Construction Co., Inc. as party defendant.

On March 3, 1969, the plaintiff and third-party defendants Juan F. Nakpil & Sons and Juan F. Nakpil presented a written stipulation which reads:

> **1. That in relation to defendants' answer with counterclaims and third- party complaints and the third-party defendants Nakpil & Sons' answer thereto, the plaintiff need not amend its complaint by including the said Juan F. Nakpil & Sons and Juan F. Nakpil personally as parties defendant.**
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> **2. That in the event (unexpected by the undersigned) that the Court should find after the trial that the above-named defendants Juan J. Carlos and United Construction Co., Inc. are free from any blame and liability for the collapse of the PBA Building, and should further find that the collapse of said building was due to defects and/or inadequacy of the plans, designs, and specifications p by the third-party defendants, or in the event that the Court may find Juan F. Nakpil and Sons and/or Juan F. Nakpil contributorily negligent or in any way jointly and solidarily liable with the defendants, judgment may be rendered in whole or in part. as the case may be, against Juan F. Nakpil & Sons and/or Juan F. Nakpil in favor of the plaintiff**

to all intents and purposes as if plaintiff's complaint has been duly amended by including the said Juan F. Nakpil & Sons and Juan F. Nakpil as parties defendant and by alleging causes of action against them including, among others, the defects or inadequacy of the plans, designs, and specifications prepared by them and/or failure in the performance of their contract with plaintiff.

3. Both parties hereby jointly petition this Honorable Court to approve this stipulation. (Record on Appeal, pp. 274-275; Rollo, L-47851,p.169).

Upon the issues being joined, a pre-trial was conducted on March 7, 1969, during which among others, the parties agreed to refer the technical issues involved in the case to a Commissioner. Mr. Andres O. Hizon, who was ultimately appointed by the trial court, assumed his office as Commissioner, charged with the duty to try the following issues:

1. Whether the damage sustained by the PBA building during the August 2, 1968 earthquake had been caused, directly or indirectly, by:

(a) The inadequacies or defects in the plans and specifications prepared by third-party defendants;

(b) The deviations, if any, made by the defendants from said plans and specifications and how said deviations contributed to the damage sustained;

(c) The alleged failure of defendants to observe the requisite quality of materials and workmanship in the construction of the building;

(d) The alleged failure to exercise the requisite degree of supervision expected of the architect, the contractor and/or the owner of the building;

(e) An act of God or a fortuitous event; and

(f) Any other cause not herein above specified.

2. If the cause of the damage suffered by the building arose from a combination of the above-enumerated factors, the degree or proportion in which each individual factor contributed to the damage sustained;

3. Whether the building is now a total loss and should be completely demolished or whether it may still be repaired and restored to a tenantable condition. In the latter case, the determination of the cost of such restoration or repair, and the value of any remaining construction, such as the foundation, which may still be utilized or availed of (Record on Appeal, pp. 275-276; Rollo, L-47851, p. 169).

Thus, the issues of this case were divided into technical issues and non-technical issues. As aforestated the technical issues were referred to the Commissioner. The non-technical issues were tried by the Court.

Meanwhile, plaintiff moved twice for the demolition of the building on the ground that it may topple down in case of a strong earthquake. The motions were opposed by the defendants and the matter was referred to the Commissioner. Finally, on April 30, 1979 the building was authorized to be demolished at the expense of the plaintiff, but not another earthquake of high intensity on April 7, 1970 followed by other strong earthquakes on April 9, and 12, 1970, caused further damage to the property. The actual demolition was undertaken by the buyer of the damaged building. (Record on Appeal, pp. 278-280; *Ibid.*)

After the protracted hearings, the Commissioner eventually submitted his report on September 25, 1970 with the findings that while the damage sustained by the PBA building was caused directly by the August 2, 1968 earthquake whose magnitude was estimated at 7.3 they were also caused by the defects in the plans and specifications prepared by the third-party defendants' architects, deviations from said plans and specifications by the defendant contractors and failure of the latter to observe the requisite workmanship in the construction of the building and of the contractors, architects and even the owners to exercise the requisite degree of supervision in the construction of subject building.

All the parties registered their objections to aforesaid findings which in turn were answered by the Commissioner.

The trial court agreed with the findings of the Commissioner except as to the holding that the owner is charged with full nine supervision of the construction. The Court sees no legal or contractual basis for such conclusion. (Record on Appeal, pp. 309-328; Ibid).

Thus, on September 21, 1971, the lower court rendered the assailed decision which was modified by the Intermediate Appellate Court on November 28, 1977.

All the parties herein appealed from the decision of the Intermediate Appellate Court. Hence, these petitions.

On May 11, 1978, the United Architects of the Philippines, the Association of Civil Engineers, and the Philippine Institute of Architects filed with the Court a motion to intervene as *amicus curiae.* They proposed to present a position paper on the liability of architects when a building collapses and to submit likewise a critical analysis with computations on the divergent views on the design and plans as submitted by the experts procured by the parties. The motion having been granted, the *amicus curiae* were granted a period of 60 days within which to submit their position.

After the parties had all filed their comments, We gave due course to the petitions in Our Resolution of July 21, 1978.

The position papers of the *amicus curiae* (submitted on November 24, 1978) were duly noted.

The *amicus curiae* gave the opinion that the plans and specifications of the Nakpils were not defective. But the Commissioner, when asked by Us to comment, reiterated his conclusion that the defects in the plans and specifications indeed existed.

Using the same authorities availed of by the *amicus curiae* such as the Manila Code (Ord. No. 4131) and the 1966 Asep Code, the Commissioner added that even if it can be proved that the defects in the *construction* alone (and not in the plans and design) caused the damage to the building, still the deficiency in the original design and jack of specific provisions against torsion in the original plans and the overload on the ground floor columns (found by an the experts including the original designer) certainly contributed to the damage which occurred. (*Ibid,* p. 174).

In their respective briefs petitioners, among others, raised the following assignments of errors: Philippine Bar Association claimed that the measure of damages should not be limited to P1,100,000.00 as estimated cost of repairs or to the period of six (6) months for loss of rentals while United Construction Co., Inc. and the Nakpils claimed that it was an act of God that caused the failure of the building which should exempt them from responsibility and not the defective construction, poor workmanship, deviations from plans and specifications and other imperfections in the case of United Construction Co., Inc. or the deficiencies in the design, plans and specifications prepared by petitioners in the case of the Nakpils. Both UCCI and the Nakpils object to the payment of the additional amount of P200,000.00 imposed by the Court of Appeals. UCCI also claimed that it should be reimbursed the expenses of shoring the building in the amount of P13,661.28 while the Nakpils opposed the payment of damages jointly and solidarity with UCCI.

The pivotal issue in this case is whether or not an act of God-an unusually strong earthquake-which caused the failure of the building, exempts from liability, parties who are otherwise liable because of their negligence.

The applicable law governing the rights and liabilities of the parties herein is Article 1723 of the New Civil Code, which provides:

> **Art. 1723. The engineer or architect who drew up the plans and specifications for a building is liable for damages if within fifteen years from the completion of the structure the same should collapse by reason of a defect in those plans and specifications, or due to the defects in the ground. The contractor is likewise responsible for the damage if the edifice fags within the same period on account of defects in the construction or the use of materials of inferior quality furnished by him, or due to any violation of the terms of the contract. If the engineer or architect supervises the construction, he shall be solidarily liable with the contractor.**
>
> **Acceptance of the building, after completion, does not imply waiver of any of the causes of action by reason of any defect mentioned in the preceding paragraph.**
>
> **The action must be brought within ten years following the collapse of the building.**

On the other hand, the general rule is that no person shall be responsible for events which could not be foreseen or which though foreseen, were inevitable (Article 1174, New Civil Code).

An act of God has been defined as an accident, due directly and exclusively to natural causes without human intervention, which by no amount of foresight, pains or care, reasonably to have been expected,

could have been prevented. (1 Corpus Juris 1174).

There is no dispute that the earthquake of August 2, 1968 is a fortuitous event or an act of God.

To exempt the obligor from liability under Article 1174 of the Civil Code, for a breach of an obligation due to an "act of God," the following must concur: (a) the cause of the breach of the obligation must be independent of the will of the debtor; (b) the event must be either unforseeable or unavoidable; (c) the event must be such as to render it impossible for the debtor to fulfill his obligation in a normal manner; and (d) the debtor must be free from any participation in, or aggravation of the injury to the creditor. (Vasquez v. Court of Appeals, 138 SCRA 553; Estrada v. Consolacion, 71 SCRA 423; Austria v. Court of Appeals, 39 SCRA 527; Republic of the Phil. v. Luzon Stevedoring Corp., 21 SCRA 279; Lasam v. Smith, 45 Phil. 657).

Thus, if upon the happening of a fortuitous event or an act of God, there concurs a corresponding fraud, negligence, delay or violation or contravention in any manner of the tenor of the obligation as provided for in Article 1170 of the Civil Code, which results in loss or damage, the obligor cannot escape liability.

The principle embodied in the act of God doctrine strictly requires that the act must be one occasioned exclusively by the violence of nature and all human agencies are to be excluded from creating or entering into the cause of the mischief. When the effect, the cause of which is to be considered, is found to be in part the result of the participation of man, whether it be from active intervention or neglect, or failure to act, the whole occurrence is thereby humanized, as it were, and removed from the rules applicable to the acts of God. (1 Corpus Juris, pp. 1174-1175).

Thus it has been held that when the negligence of a person concurs with an act of God in producing a loss, such person is not exempt from liability by showing that the immediate cause of the damage was the act of God. To be exempt from liability for loss because of an act of God, he must be free from any previous negligence or misconduct by which that loss or damage may have been occasioned. (Fish & Elective Co. v. Phil. Motors, 55 Phil. 129; Tucker v. Milan, 49 O.G. 4379; Limpangco & Sons v. Yangco Steamship Co., 34 Phil. 594, 604; Lasam v. Smith, 45 Phil. 657).

The negligence of the defendant and the third-party defendants petitioners was established beyond dispute both in the lower court and in the Intermediate Appellate Court. Defendant United Construction Co., Inc. was found to have made substantial deviations from the plans and specifications. and to have failed to observe the requisite workmanship in the construction as well as to exercise the requisite degree of supervision; while the third-party defendants were found to have inadequacies or defects in the plans and specifications prepared by them. As correctly assessed by both courts, the defects in the construction and in the plans and specifications were the proximate causes that rendered the PBA building unable to withstand the earthquake of August 2, 1968. For this reason the defendant and third-party defendants cannot claim exemption from liability. (Decision, Court of Appeals, pp. 30-31).

It is well settled that the findings of facts of the Court of Appeals are conclusive on the parties and on this court (cases cited in Tolentino vs. de Jesus, 56 SCRA 67; Cesar vs. Sandiganbayan, January 17, 1985, 134 SCRA 105, 121), unless (1) the conclusion is a finding grounded entirely on speculation, surmise and conjectures; (2) the inference made is manifestly mistaken; (3) there is grave abuse of discretion; (4) the judgment is based on misapprehension of facts; (5) the findings of fact are conflicting , (6) the Court of Appeals went beyond the issues of the case and its findings are contrary to the admissions of both appellant and appellees (Ramos vs. Pepsi-Cola Bottling Co., February 8, 1967, 19 SCRA 289, 291-292; Roque vs. Buan, Oct. 31, 1967, 21 SCRA 648, 651); (7) the findings of facts of the Court of Appeals are contrary to those of the trial court; (8) said findings of facts are conclusions without citation of specific evidence on which they are based; (9) the facts set forth in the petition as well as in the petitioner's main and reply briefs are not disputed by the respondents (Garcia vs. CA, June 30, 1970, 33 SCRA 622; Alsua-Bett vs. Court of Appeals, July 30, 1979, 92 SCRA 322, 366); (10) the finding of fact of the Court of Appeals is premised on the supposed absence of evidence and is contradicted by evidence on record (Salazar vs. Gutierrez, May 29, 1970, 33 SCRA 243, 247; Cited in G.R. No. 66497-98, Sacay v. Sandiganbayan, July 10, 1986).

It is evident that the case at bar does not fall under any of the exceptions above-mentioned. On the contrary, the records show that the lower court spared no effort in arriving at the correct appreciation of facts by the referral of technical issues to a Commissioner chosen by the parties whose findings and conclusions remained convincingly unrebutted by the intervenors/*amicus curiae* who were allowed to intervene in the Supreme Court.

In any event, the relevant and logical observations of the trial court as affirmed by the Court of Appeals that "while it is not possible to state with certainty that the building would not have collapsed were those defects not present, the fact remains that several buildings in the same area withstood the earthquake to which the building of the plaintiff was similarly subjected," cannot be ignored.

The next issue to be resolved is the amount of damages to be awarded to the PBA for the partial collapse (and eventual complete collapse) of its building.

The Court of Appeals affirmed the finding of the trial court based on the report of the Commissioner that the total amount required to repair the PBA building and to restore it to tenantable condition was P900,000.00 inasmuch as it was not initially a total loss. However, while the trial court awarded the PBA said amount as damages, plus unrealized rental income for one-half year, the Court of Appeals modified the amount by awarding in favor of PBA an additional sum of P200,000.00 representing the damage suffered by the PBA building as a result of another earthquake that occurred on April 7, 1970 (L-47896, Vol. I, p. 92).

The PBA in its brief insists that the proper award should be P1,830,000.00 representing the total value of the building (L-47896, PBA's No. 1 Assignment of Error, p. 19), while both the NAKPILS and UNITED question the additional award of P200,000.00 in favor of the PBA (L- 47851, NAKPIL's Brief as Petitioner, p. 6, UNITED's Brief as Petitioner, p. 25). The PBA further urges that the unrealized rental income awarded to it should not be limited to a period of one-half year but should be computed on a continuing basis at the rate of P178,671.76 a year until the judgment for the principal amount shall have been satisfied L-47896, PBA's No. 11 Assignment of Errors, p. 19).

The collapse of the PBA building as a result of the August 2, 1968 earthquake was only partial and it is undisputed that the building could then still be repaired and restored to its tenantable condition. The PBA, however, in view of its lack of needed funding, was unable, thru no fault of its own, to have the building repaired. UNITED, on the other hand, spent P13,661.28 to shore up the building after the August 2, 1968 earthquake (L-47896, CA Decision, p. 46). Because of the earthquake on April 7, 1970, the trial court after the needed consultations, authorized the total demolition of the building (L-47896, Vol. 1, pp. 53-54).

There should be no question that the NAKPILS and UNITED are liable for the damage resulting from the partial and eventual collapse of the PBA building as a result of the earthquakes.

We quote with approval the following from the erudite decision penned by Justice Hugo E. Gutierrez (now an Associate Justice of the Supreme Court) while still an Associate Justice of the Court of Appeals:

> **There is no question that an earthquake and other forces of nature such as cyclones, drought, floods, lightning, and perils of the sea are acts of God. It does not necessarily follow, however, that specific losses and suffering resulting from the occurrence of these natural force are also acts of God. We are not convinced on the basis of the evidence on record that from the thousands of structures in Manila, God singled out the blameless PBA building in Intramuros and around six or seven other buildings in various parts of the city for collapse or severe damage and that God alone was responsible for the damages and losses thus suffered.**
>
> **The record is replete with evidence of defects and deficiencies in the designs and plans, defective construction, poor workmanship, deviation from plans and specifications and other imperfections. These deficiencies are attributable to negligent men and not to a perfect God.**
>
> **The act-of-God arguments of the defendants- appellants and third party defendants-appellants presented in their briefs are premised on legal generalizations or speculations and on theological fatalism both of which ignore the plain facts. The lengthy discussion of United on ordinary earthquakes and unusually strong earthquakes and on ordinary fortuitous events and extraordinary fortuitous events leads to its argument that the August 2, 1968 earthquake was of such an overwhelming and destructive character that by its own force and independent of the particular negligence alleged, the injury would have been produced. If we follow this line of speculative reasoning, we will be forced to conclude that under such a situation scores of buildings in the vicinity and in other parts of Manila would have toppled down. Following the same line of reasoning, Nakpil and Sons alleges that the designs were adequate in accordance with pre-August 2, 1968 knowledge and appear inadequate only in the light of engineering information acquired after the earthquake. If this were so, hundreds of ancient buildings which survived the earthquake better than the two-year old PBA building must have been designed and constructed by architects and contractors whose knowledge and foresight were unexplainably auspicious and prophetic. Fortunately, the facts on record allow a more down to earth explanation of the collapse. The failure of the PBA building, as a unique and distinct construction with no reference or comparison to other buildings, to weather the severe earthquake forces was traced to design deficiencies and defective construction, factors which are neither mysterious nor esoteric.**

The theological allusion of appellant United that God acts in mysterious ways His wonders to perform impresses us to be inappropriate. The evidence reveals defects and deficiencies in design and construction. There is no mystery about these acts of negligence. The collapse of the PBA building was no wonder performed by God. It was a result of the imperfections in the work of the architects and the people in the construction company. More relevant to our mind is the lesson from the parable of the wise man in the Sermon on the Mount "which built his house upon a rock; and the rain descended and the floods came and the winds blew and beat upon that house; and it fen not; for it was founded upon a rock" and of the "foolish upon the sand. And the rain descended and man which built his house the floods came, and the winds blew, and beat upon that house; and it fell and great was the fall of it. (St. Matthew 7: 24-27)." The requirement that a building should withstand rains, floods, winds, earthquakes, and natural forces is precisely the reason why we have professional experts like architects, and engineers. Designs and constructions vary under varying circumstances and conditions but the requirement to design and build well does not change.

The findings of the lower Court on the cause of the collapse are more rational and accurate. Instead of laying the blame solely on the motions and forces generated by the earthquake, it also examined the ability of the PBA building, as designed and constructed, to withstand and successfully weather those forces.

The evidence sufficiently supports a conclusion that the negligence and fault of both United and Nakpil and Sons, not a mysterious act of an inscrutable God, were responsible for the damages. The Report of the Commissioner, Plaintiff's Objections to the Report, Third Party Defendants' Objections to the Report, Defendants' Objections to the Report, Commissioner's Answer to the various Objections, Plaintiffs' Reply to the Commissioner's Answer, Defendants' Reply to the Commissioner's Answer, Counter-Reply to Defendants' Reply, and Third-Party Defendants' Reply to the Commissioner's Report not to mention the exhibits and the testimonies show that the main arguments raised on appeal were already raised during the trial and fully considered by the lower Court. A reiteration of these same arguments on appeal fails to convince us that we should reverse or disturb the lower Court's factual findings and its conclusions drawn from the facts, among them:

The Commissioner also found merit in the allegations of the defendants as to the physical evidence before and after the earthquake showing the inadequacy of design, to wit:

Physical evidence before the earthquake providing (sic) inadequacy of design;

1. inadequate design was the cause of the failure of the building.

2. Sun-baffles on the two sides and in front of the building;

a. Increase the inertia forces that move the building laterally toward the Manila Fire Department.

b. Create another stiffness imbalance.

3. The embedded 4" diameter cast iron down spout on all exterior columns reduces the cross-sectional area of each of the columns and the strength thereof.

4. Two front corners, A7 and D7 columns were very much less reinforced.

Physical Evidence After the Earthquake, Proving Inadequacy of design;

1. Column A7 suffered the severest fracture and maximum sagging. Also D7.

2. There are more damages in the front part of the building than towards the rear, not only in columns but also in slabs.

3. Building leaned and sagged more on the front part of the building.

4. Floors showed maximum sagging on the sides and toward the front corner parts of the building.

5. There was a lateral displacement of the building of about 8", Maximum sagging occurs at the column A7 where the floor is lower by 80 cm. than the highest slab level.

6. Slab at the corner column D7 sagged by 38 cm.

The Commissioner concluded that there were deficiencies or defects in the design, plans and specifications of the PBA building which involved appreciable risks with respect to the accidental forces which may result from earthquake shocks. He conceded, however, that the fact that those deficiencies or defects may have arisen from an obsolete or not too conservative code or even a code that does not require a design for earthquake forces mitigates in a large measure the responsibility or liability of the architect and engineer designer.

The Third-party defendants, who are the most concerned with this portion of the Commissioner's report, voiced opposition to the same on the grounds that (a) the finding is based on a basic erroneous conception as to the design concept of the building, to wit, that the design is essentially that of a heavy rectangular box on stilts with shear wan at one end; (b) the finding that there were defects and a deficiency in the design of the building would at best be based on an approximation and, therefore, rightly belonged to the realm of speculation, rather than of certainty and could very possibly be outright error; (c) the Commissioner has failed to back up or support his finding with extensive, complex and highly specialized computations and analyzes which he himself emphasizes are necessary in the determination of such a highly technical question; and (d) the Commissioner has analyzed the design of the PBA building not in the light of existing and available earthquake engineering knowledge at the time of the preparation of the design, but in the light of recent and current standards.

The Commissioner answered the said objections alleging that third-party defendants' objections were based on estimates or exhibits not presented during the hearing that the resort to engineering references posterior to the date of the preparation of the plans was induced by the third-party defendants themselves who submitted computations of the third-party defendants are erroneous.

The issue presently considered is admittedly a technical one of the highest degree. It involves questions not within the ordinary competence of the bench and the bar to resolve by themselves. Counsel for the third-party defendants has aptly remarked that "engineering, although dealing in mathematics, is not an exact science and that the present knowledge as to the nature of earthquakes and the behaviour of forces generated by them still leaves much to be desired; so much so "that the experts of the different parties, who are all engineers, cannot agree on what equation to use, as to what earthquake co-efficients are, on the codes to be used and even as to the type of structure that the PBA building (is) was (p. 29, Memo, of third- party defendants before the Commissioner).

The difficulty expected by the Court if tills technical matter were to be tried and inquired into by the Court itself, coupled with the intrinsic nature of the questions involved therein, constituted the reason for the reference of the said issues to a Commissioner whose qualifications and experience have eminently qualified him for the task, and whose competence had not been questioned by the parties until he submitted his report. Within the pardonable limit of the Court's ability to comprehend the meaning of the Commissioner's report on this issue, and the objections voiced to the same, the Court sees no compelling reasons to disturb the findings of the Commissioner that there were defects and deficiencies in the design, plans and specifications prepared by third-party defendants, and that said defects and deficiencies involved appreciable risks with respect to the accidental forces which may result from earthquake shocks.

(2) (a) The deviations, if any, made by the defendants from the plans and specifications, and how said deviations contributed to the damage sustained by the building.

(b) The alleged failure of defendants to observe the requisite quality of materials and workmanship in the construction of the building.

These two issues, being interrelated with each other, will be discussed together.

The findings of the Commissioner on these issues were as follows:

We now turn to the construction of the PBA Building and the alleged deficiencies or defects in the construction and violations or deviations from the plans and specifications. All these may be summarized as follows:

a. Summary of alleged defects as reported by Engineer Mario M. Bundalian.

(1) Wrongful and defective placing of reinforcing bars.

(2) Absence of effective and desirable integration of the 3 bars in the cluster.

(3) Oversize coarse aggregates: 1-1/4 to 2" were used. Specification requires no larger than 1 inch.

(4) Reinforcement assembly is not concentric with the column, eccentricity being 3" off when on one face the main bars are only 1 1/2' from the surface.

(5) Prevalence of honeycombs,

(6) Contraband construction joints,

(7) Absence, or omission, or over spacing of spiral hoops,

(8) Deliberate severance of spirals into semi-circles in noted on Col. A-5, ground floor,

(9) Defective construction joints in Columns A-3, C-7, D-7 and D-4, ground floor,

(10) Undergraduate concrete is evident,

(11) Big cavity in core of Column 2A-4, second floor,

(12) Columns buckled at different planes. Columns buckled worst where there are no spirals or where spirals are cut. Columns suffered worst displacement where the eccentricity of the columnar reinforcement assembly is more acute.

b. Summary of alleged defects as reported by Engr. Antonio Avecilla.

Columns are first (or ground) floor, unless otherwise stated.

(1) Column D4 — Spacing of spiral is changed from 2" to 5" on centers,

(2) Column D5 — No spiral up to a height of 22" from the ground floor,

(3) Column D6 — Spacing of spiral over 4 l/2,

(4) Column D7 — Lack of lateral ties,

(5) Column C7 — Absence of spiral to a height of 20" from the ground level, Spirals are at 2" from the exterior column face and 6" from the inner column face,

(6) Column B6 — Lack of spiral on 2 feet below the floor beams,

(7) Column B5 — Lack of spirals at a distance of 26' below the beam,

(8) Column B7 — Spirals not tied to vertical reinforcing bars, Spirals are uneven 2" to 4",

(9) Column A3 — Lack of lateral ties,

(10) Column A4 — Spirals cut off and welded to two separate clustered vertical bars,

(11) Column A4 — (second floor Column is completely hollow to a height of 30"

(12) Column A5 — Spirals were cut from the floor level to the bottom of the spandrel beam to a height of 6 feet,

(13) Column A6 — No spirals up to a height of 30' above the ground floor level,

(14) Column A7— Lack of lateralties or spirals,

c. Summary of alleged defects as reported by the experts of the Third-Party defendants.

Ground floor columns.

(1) Column A4 — Spirals are cut,

(2) Column A5 — Spirals are cut,

(3) Column A6 — At lower 18" spirals are absent,

(4) Column A7 — Ties are too far apart,

(5) Column B5 — At upper fourth of column spirals are either absent or improperly spliced,

(6) Column B6 — At upper 2 feet spirals are absent,

(7) Column B7 — At upper fourth of column spirals missing or improperly spliced.

(8) Column C7— Spirals are absent at lowest 18"

(9) Column D5 — At lowest 2 feet spirals are absent,

(10) Column D6 — Spirals are too far apart and apparently improperly spliced,

(11) Column D7 — Lateral ties are too far apart, spaced 16" on centers.

There is merit in many of these allegations. The explanations given by the engineering experts for the defendants are either contrary to general principles of engineering design for reinforced concrete or not applicable to the requirements for ductility and strength of reinforced concrete in earthquake-resistant design and construction.

We shall first classify and consider defects which may have appreciable bearing or relation to' the earthquake-resistant property of the building.

As heretofore mentioned, details which insure ductility at or near the connections between columns and girders are desirable in earthquake resistant design and construction. The omission of spirals and ties or hoops at the bottom and/or tops of columns contributed greatly to the loss of earthquake-resistant strength. The plans and specifications required that these spirals and ties be carried from the floor level to the bottom reinforcement of the deeper beam (p. 1, Specifications, p. 970, Reference 11). There were several clear evidences where this was not done especially in some of the ground floor columns which failed.

There were also unmistakable evidences that the spacings of the spirals and ties in the columns were in many cases greater than those called for in the plans and specifications resulting again in loss of earthquake-resistant strength. The assertion of the engineering experts for the defendants that the improper spacings and the cutting of the spirals did not result in loss of strength in the column cannot be maintained and is certainly contrary to the general principles of column design and construction. And even granting that there be no loss in strength at the yield point (an assumption which is very doubtful) the cutting or improper spacings of spirals will certainly result in the loss of the plastic range or ductility in the column and it is precisely this plastic range or ductility which is desirable and needed for earthquake-resistant strength.

There is no excuse for the cavity or hollow portion in the column A4, second floor, and although this column did not fail, this is certainly an evidence on the part of the contractor of poor construction.

The effect of eccentricities in the columns which were measured at about 2 1/2 inches maximum may be approximated in relation to column loads and column and beam moments. The main effect of eccentricity is to change the beam or girder span. The effect on the measured eccentricity of 2 inches, therefore, is to increase or diminish the column load by a maximum of about 1% and to increase or diminish the column or beam movements by about a maximum of 2%. While these can certainly be absorbed within the factor of safety, they nevertheless diminish said factor of safety.

The cutting of the spirals in column A5, ground floor is the subject of great contention between the parties and deserves special consideration.

The proper placing of the main reinforcements and spirals in column A5, ground floor, is the responsibility of the general contractor which is the UCCI. The burden of proof, therefore, that this cutting was done by others is upon the defendants. Other than a strong allegation and assertion that it is the plumber or his men who may have done the cutting (and this was flatly denied by the plumber) no conclusive proof was presented. The engineering experts for the defendants asserted that they could have no motivation for cutting the bar because they can simply replace the spirals by wrapping around a new set of spirals. This is not quite correct. There is evidence to show that the pouring of concrete for columns was sometimes done through the beam and girder reinforcements which were already in place as in the case of column A4 second floor. If the reinforcement for the girder and column is to subsequently

wrap around the spirals, this would not do for the elasticity of steel would prevent the making of tight column spirals and loose or improper spirals would result. The proper way is to produce correct spirals down from the top of the main column bars, a procedure which can not be done if either the beam or girder reinforcement is already in place. The engineering experts for the defendants strongly assert and apparently believe that the cutting of the spirals did not materially diminish the strength of the column. This belief together with the difficulty of slipping the spirals on the top of the column once the beam reinforcement is in place may be a sufficient motivation for the cutting of the spirals themselves. The defendants, therefore, should be held responsible for the consequences arising from the loss of strength or ductility in column A5 which may have contributed to the damages sustained by the building.

The lack of proper length of splicing of spirals was also proven in the visible spirals of the columns where spalling of the concrete cover had taken place. This lack of proper splicing contributed in a small measure to the loss of strength.

The effects of all the other proven and visible defects although nor can certainly be accumulated so that they can contribute to an appreciable loss in earthquake-resistant strength. The engineering experts for the defendants submitted an estimate on some of these defects in the amount of a few percent. If accumulated, therefore, including the effect of eccentricity in the column the loss in strength due to these minor defects may run to as much as ten percent.

To recapitulate: the omission or lack of spirals and ties at the bottom and/or at the top of some of the ground floor columns contributed greatly to the collapse of the PBA building since it is at these points where the greater part of the failure occurred. The liability for the cutting of the spirals in column A5, ground floor, in the considered opinion of the Commissioner rests on the shoulders of the defendants and the loss of strength in this column contributed to the damage which occurred.

It is reasonable to conclude, therefore, that the proven defects, deficiencies and violations of the plans and specifications of the PBA building contributed to the damages which resulted during the earthquake of August 2, 1968 and the vice of these defects and deficiencies is that they not only increase but also aggravate the weakness mentioned in the design of the structure. In other words, these defects and deficiencies not only tend to add but also to multiply the effects of the shortcomings in the design of the building. We may say, therefore, that the defects and deficiencies in the construction contributed greatly to the damage which occurred.

Since the execution and supervision of the construction work in the hands of the contractor is direct and positive, the presence of existence of all the major defects and deficiencies noted and proven manifests an element of negligence which may amount to imprudence in the construction work. (pp. 42-49, Commissioners Report).

As the parties most directly concerned with this portion of the Commissioner's report, the defendants voiced their objections to the same on the grounds that the Commissioner should have specified the defects found by him to be "meritorious"; that the Commissioner failed to indicate the number of cases where the spirals and ties were not carried from the floor level to the bottom reinforcement of the deeper beam, or where the spacing of the spirals and ties in the columns were greater than that called for in the specifications; that the hollow in column A4, second floor, the eccentricities in the columns, the lack of proper length of splicing of spirals, and the cut in the spirals in column A5, ground floor, did not aggravate or contribute to the damage suffered by the building; that the defects in the construction were within the tolerable margin of safety; and that the cutting of the spirals in column A5, ground floor, was done by the plumber or his men, and not by the defendants.

Answering the said objections, the Commissioner stated that, since many of the defects were minor only the totality of the defects was considered. As regards the objection as to failure to state the number of cases where the spirals and ties were not carried from the floor level to the bottom reinforcement, the Commissioner specified groundfloor columns B-6 and C-5 the first one without spirals for 03 inches at the top, and in the latter, there were no spirals for 10 inches at the bottom. The Commissioner likewise specified the first storey columns where the spacings were greater than that called for in the specifications to be columns B-5, B-6, C-7, C-6, C-5, D-5 and B-7. The objection to the failure of the Commissioner to specify the number of columns where there was lack of proper length of splicing of spirals, the Commissioner mentioned groundfloor columns B-6 and B-5 where all the splices were less than 1-1/2 turns and were not welded, resulting in some loss of strength which could be critical near the ends of the columns. He answered the supposition of the defendants that the spirals and the ties must

have been looted, by calling attention to the fact that the missing spirals and ties were only in two out of the 25 columns, which rendered said supposition to be improbable.

The Commissioner conceded that the hollow in column A-4, second floor, did not aggravate or contribute to the damage, but averred that it is "evidence of poor construction." On the claim that the eccentricity could be absorbed within the factor of safety, the Commissioner answered that, while the same may be true, it also contributed to or aggravated the damage suffered by the building.

The objection regarding the cutting of the spirals in Column A-5, groundfloor, was answered by the Commissioner by reiterating the observation in his report that irrespective of who did the cutting of the spirals, the defendants should be held liable for the same as the general contractor of the building. The Commissioner further stated that the loss of strength of the cut spirals and inelastic deflections of the supposed lattice work defeated the purpose of the spiral containment in the column and resulted in the loss of strength, as evidenced by the actual failure of this column.

Again, the Court concurs in the findings of the Commissioner on these issues and fails to find any sufficient cause to disregard or modify the same. As found by the Commissioner, the "deviations made by the defendants from the plans and specifications caused indirectly the damage sustained and that those deviations not only added but also aggravated the damage caused by the defects in the plans and specifications prepared by third-party defendants. (Rollo, Vol. I, pp. 128-142)

The afore-mentioned facts clearly indicate the wanton negligence of both the defendant and the third-party defendants in effecting the plans, designs, specifications, and construction of the PBA building and We hold such negligence as equivalent to *bad faith* in the performance of their respective tasks.

Relative thereto, the ruling of the Supreme Court in *Tucker v. Milan* (49 O.G. 4379, 4380) which may be in point in this case reads:

One who negligently creates a dangerous condition cannot escape liability for the natural and probable consequences thereof, although the act of a third person, or an act of God for which he is not responsible, intervenes to precipitate the loss.

As already discussed, the destruction was not purely an act of God. Truth to tell hundreds of ancient buildings in the vicinity were hardly affected by the earthquake. Only one thing spells out the fatal difference; gross negligence and evident bad faith, without which the damage would not have occurred.

WHEREFORE, the decision appealed from is hereby MODIFIED and considering the special and environmental circumstances of this case, We deem it reasonable to render a decision imposing, as We do hereby impose, upon the defendant and the third-party defendants (with the exception of Roman Ozaeta) a *solidary* (Art. 1723, Civil Code, *Supra,* p. 10) indemnity in favor of the Philippine Bar Association of FIVE MILLION (P5,000,000.00) Pesos to cover all damages (with the exception of attorney's fees) occasioned by the loss of the building (including interest charges and lost rentals) and an additional ONE HUNDRED THOUSAND (P100,000.00) Pesos as and for attorney's fees, the total sum being payable upon the finality of this decision. Upon failure to pay on such finality, twelve (12%) per cent interest per annum shall be imposed upon afore-mentioned amounts from finality until paid. Solidary costs against the defendant and third-party defendants (except Roman Ozaeta).

SO ORDERED.

Feria (Chairman), Fernan, Alampay and Cruz, JJ., concur.

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